PHLOEOXENA NEWTONI NEW SPECIES, AND NOTES ON *P. NIGRICOLLIS* BALL AND *P. GENICULATA* CHAUDOIR FROM MEXICO (COLEOPTERA: CARABIDAE: LEBIINI).[1]

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ABSTRACT: The type locality of *Phloeoxena (Oenaphelox) newtoni* is Nuevo Leon, Chipinque Mesa (1219m), near Monterrey. This new species is distinguished from other members of the genus, is described, and elytral microsculpture, pronotum and male genitalia are illustrated. *Phloeoxena newtoni* is thought to be the sister species of *P. undata* Chaudoir, and closest to the ancestral stock of the *Phloeoxena signata* species group. The first record of *Phloeoxena (sensu stricto) nigricollis* Ball from Oaxaca is cited. Males of a population sample of *Phloeoxena (Oenaphelox) geniculata* Chaudoir from the lower slopes of Volcan Colima differs from the Cuernavaca, Morelos sample in details of the median lobe and in number of spines on the internal sac.

DESCRIPTORS: Insecta; Coleoptera: Carabidae: Lebiini; *Phloeoxena newtoni* n. sp., *P. nigricollis* Ball, *P. geniculata* Chaudoir; Mexico; systematics, zoogeography.

This paper is based on material that became available too late to be included in a revision of the species of *Phloeoxena* (Ball, 1975).

SYSTEMATICS

The key (Ball, 1975: 182) is modified as follows for inclusion of the new species:

20 (19') Specimen from Mexico; male genitalia with spines in internal sac . . . 20A.

20' Specimen from West Indies; internal sac without spines . . . . . 21.

20A (20) Metepisternum with lateral margin distinctly longer than anterior margin, hind wings fully developed; eyes large (value for Hw/Pl greater than 1.15); pronotum with sides markedly rounded, *Agonum*-like in form; legs uniformly pale, or mainly pale with apices of femora and bases of tibiae dark . . . . . *P. (Oenaphelox)* geniculata

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20A' Metepisternum with lateral margin only slightly longer than anterior margin, hind wings short stubs; eyes moderate in size (Hw/Pl 0.96); pronotum with sides less rounded, not *Agonum*-like in form (Fig. 2) legs uniformly pale . . . . . *P. (Oenaphelox) newtoni*, new species.

Phloeoxena (Oenaphelox) newtoni, new species

Large spines of the internal sac place this species in the *P. signata* species group, of subgenus *Oenaphelox*. The uniformly piceous dorsal elytral surface distinguishes the holotype of this species from members of other species of this group except those of *P. geniculata*. The above key distinguishes between *P. geniculata* and *P. newtoni*. Dark color of legs and distinctly sinuate sides of the pronotum distinguish specimens of otherwise similar brachypterous *P. picta unicolor* Chaudoir from the holotype of *P. newtoni*.

Description. – Standardized body length 4.36 mm. Values for diagnostic ratios are: head width/maximum width of pronotum (Hw/Pwm), 0.77; head width/medial length of pronotum (Hw/Pl), 0.96; width of pronotum at apex/width of pronotum at base (P: Aw/Bw), 0.96; medial length of pronotum/elytral length (Pl/El), 0.33.

Color. Piceous, except following flavous (pale): antennae, palpi, proepipleura, elytral epipleura, and legs; pronotum laterally flavo-piceous.

Microsculpture. Head dorsally and pronotum laterally with meshes isodiametric, beaded; disc of pronotum with meshes slightly transverse, flat. (Elytra (Fig. 1) anteriorly with meshes elevated, keeled, oriented longitudinally but not aligned in recognizable rows; in posterior 0.20, meshes flat, isodiametric.

Luster. Dorsum generally dull, except apical area of elytra slightly shiny.

Head. Eyes moderately bulged.

Prothorax. Pronotum as in Fig. 2; anterior margin moderately deeply concave; lateral margins oblique, not sinuate posteriorly; anterior angles prominent, rounded; posterior angles almost rectangular, slightly obtuse; sides moderately reflexed; lateral grooves broad, continuous with posterior-lateral impressions; disc slightly convex: two pairs of setae laterally, on margins. Metepisternum subquadrate, lateral margin only slightly longer than anterior margin.

Elytra. Humeri broadly rounded; sides subparallel, slightly flared; narrowly reflexed apical margins sinuate-subtruncate. Striae broad, intervals slightly convex. Discal setae of each elytron three, umbilical series broadly interrupted medially.

Hind wings. Short stubs, each not much longer than one abdominal tergum.

Male genitalia. Median lobe as in Figs. 3A and B, apical portion more tapered and slender than in other species of *Oenaphelox* (see Ball, 1975: Figs. 96, 98, 101 and 107-110). Internal sac with spines of two sizes: three large, and one small, latter apicad with sac infolded (Fig. 3A). Left paramere as in Fig. 3C.

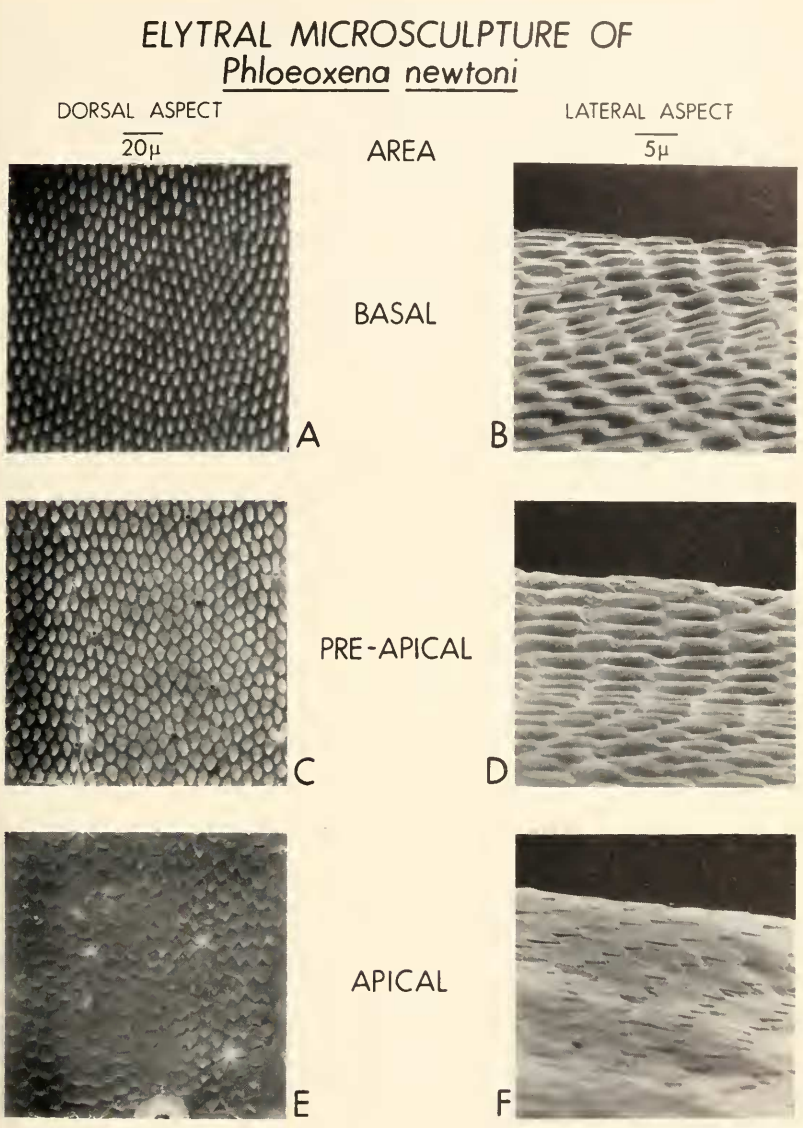


Fig. 1. "Stereoscan" photograph of elytral microsculpture of *Phloeoxena newtoni*, new species, taken with a Cambridge Mark IV Scanning Electron Microscope.

Type material. – Holotype (only known specimen) labelled: MEXICO. Nuevo Leon, Chipinque Mesa, nr. Monterrey, 4000' [=1219m], V.25-26.1971, under oak bark; A. Newton. [Museum of Comparative Zoology, Harvard University].

Derivation of specific epithet. – From the surname of the collector, A.F. Newton, a staphylinid specialist with a penchant for finding fine carabids.

Habitat note. – The forest on Chipinque Mesa, type locality of *P. newtoni,* is pine-oak. Howden (1966: 20) notes that the area represents the northern limit for many of the Mexican mesic forest insects.

Geographical affinities. – The type locality is in the northern part of the Sierra Madre Oriental about 300 km. northwest of the range of *P. undata* (Ball, 1975: Fig. 103), the only other species of *Oenaphelox* to occur on the higher slopes of this mountain system. Thus, these two species are probably allopatric. Probably *P. newtoni* and *P. signata* Dejean are parapatric, with the latter species at lower elevations in the vicinity of Chipinque Mesa.

Relationships. – *P. newtoni* and *P. undata* share the following apotypic character states (Ball, 1975: Table 21): intermediate value for the ratio P1/E1; and elytral microsculpture keeled scales, ridges narrow and high (Males of both species have both large and small spines in the internal sac, a feature that is apotypic in relation to the *P. (O.) pluto* species group, but plesiotypic within the *P. signata* group). *P. newtoni* shares no unique apotypic character states with any other species of *Oenaphelox,* so the new species and *P. undata* are quite clearly most closely related. Concolorous elytra and few spines in the internal sac suggest that of these two species, *P. newtoni* is the more plesiotypic.

Overall, *P. newtoni* seems to be the most plesiotypic, and I think closest to the ancestral stock of the *P. signata* species group. Wing reduction and occurrence in mountain forest rather than lowlands are consistent with the species being relatively old.

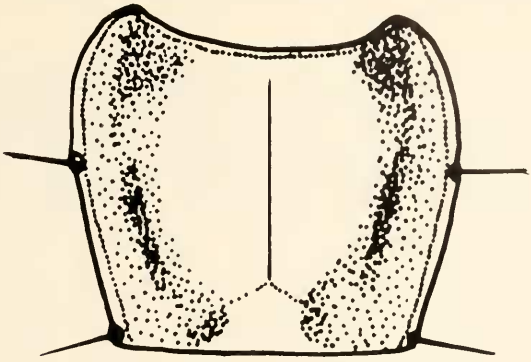
Phloeoxena (sensu stricto) nigricollis Ball

A male, labelled: "2000', 6 mi. s. Valle Nacional, Oax. Mex., V.18-20. 1971, H. Howden" (Strickland Museum, University of Alberta).

This locality is north of the Isthmus of Tehuantepec, and is about 500 km. north of the previously known northern record (Ball, 1975:196). This range extension is not surprizing, and offers further confirmation that the species lives at relatively low altitudes, and is parapatric with the higher altitude *Phloeoxena picta* Chaudoir, represented in the Valle Nacional area by *P. p. apicalis* Ball, specimens of which were collected at 3600' (=1097m).

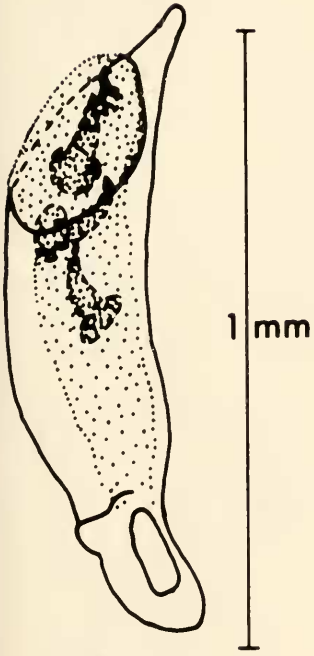
Fig. 2. Pronotum, dorsal aspect, of *Phloeoxena newtoni,* new species.

Fig. 3. Male genitalia of *Phloeoxena newtoni,* new species: A, median lobe, left lateral aspect and inverted internal sac; B, median lobe, ventral aspect; C, left paramere, ventral aspect.



2

1mm



1 mm

3A

3B

3C

Phloeoxena (Oenaphelox) geniculata Chaudoir

The California Academy of Sciences has 11 specimens collected by H.B. Leech, near the Volcan de Colima, at unspecified altitudes on the southern slopes of the Trans-Volcanic Sierra: three males, six females, SE slope, Mt. Colina, XII.2.1948; female, 7 mi. NE Colima, XII.3.1948; female, Jalisco, 17 mi. S. Mazamitla, XII.5.1975.

These localities are about 400 km. WNW of Cuernavaca, Morelos, the type locality, and the only other area from which more than one specimen has been collected. In external diagnostic characteristics (size and proportions, as determined by measurements; and color) the samples from these two areas are virtually identical, but males differ in structure of the genitalia: those from the Colima area have a well developed carina on the right ventral surface of the median lobe, and the internal sac has three spines (one large, two small); males from the Cuernavaca area have a much less evident carina on the median lobe, and the internal sac has four spines (one large, three small) (For details, see Ball, 1975:209). The differences are clear, but probably they are bridged by structural intermediates from geographically intermediate localities. Thus, the differences are not likely to be of taxonomic significance, but they are likely to be of value in understanding intra-specific relationships.

ACKNOWLEDGEMENTS

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In my Department, the stereoscan photographs were taken by George Braybrook, the plates were prepared by John S. Scott, and Twyla Gibson typed the manuscript. A preliminary draft of the latter was reviewed by W.G. Evans.

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